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January 24, 1997

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, NW  
Washington, D.C. 20554

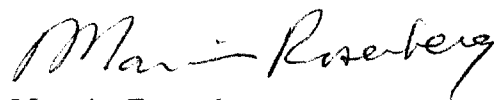
Re: MM Docket No. 87-268  
Advanced Television Systems and  
Their Impact Upon the Existing  
Television Broadcast Stations

Dear Mr. Caton:

Transmitted herewith on behalf of Hubbard Broadcasting, Inc. are an original and four copies of its Reply Comments to Comments on the Sixth Notice of Proposed Rulemaking on the above-referenced subject.

Should there be any questions, please contact the undersigned.

Very truly yours,



Marvin Rosenberg  
Counsel for  
Hubbard Broadcasting, Inc.

mr:ik  
Enclosures

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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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In the Matter of

Advanced Television Systems  
and Their Impact Upon the  
Existing Television Broadcast  
Service

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MM Docket No. 87-268

To: The Commission

**REPLY COMMENTS OF HUBBARD BROADCASTING, INC.  
TO COMMENTS ON THE SIXTH NOTICE OF PROPOSED RULEMAKING**

HUBBARD BROADCASTING, INC.

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Washington, D.C. 20037-3202  
202-955-3000

Its Counsel

January 24, 1997

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

In the Matter of	)	
	)	
Advanced Television Systems	)	MM Docket No. 87-268
and Their Impact Upon the	)	
Existing Television Broadcast	)	
Service	)	

To: The Commission

**REPLY COMMENTS OF HUBBARD BROADCASTING, INC.  
TO COMMENTS ON THE SIXTH NOTICE OF PROPOSED RULEMAKING**

1. Hubbard Broadcasting, Inc. ("Hubbard"), by its counsel, hereby submits these Reply Comments to Comments filed pursuant to the *Sixth Further Notice of Proposed Rule Making* released by the Commission in the above-referenced docket on August 14, 1996 ("*Sixth Notice*" or "*Notice*").

2. Hubbard is the licensee or parent corporation of 10 full service television stations and its programming is rebroadcast on 108 television translator stations. The present Hubbard service will be significantly affected by the Commission's Draft DTV Table of Allotments ("Draft DTV Table"). *Sixth Notice* at Appendix B. Specifically, the Draft DTV Table proposes to move seven of Hubbard's stations, which currently operate on VHF channels, to UHF channels for digital television service. Two of those stations, KSTP-TV and KOB-TV, operate on channels 5 and 4, respectively, which the Commission is considering to ultimately allocate for other than television service. It is the position of

Hubbard that, in order to preserve free over-the-air television for the public during the DTV transition period, the Commission must permit television licensees to utilize all television channels, 2 through 13 and 14 to 69, with as limited use of channels 60 to 69 as is practicable. Furthermore, if free over-the-air television is to remain available to the present number of viewers who depend upon that service as their primary source of news and information, the Commission must retain channels 2 through 6 for television use at the end of the transition period and permit licensees presently operating their NTSC service on those channels to retain those channels for their DTV operations.

3. In adopting an allotment table, the Commission must take into consideration the practical public interest consequences of its action. If the conversion to DTV results in the loss of free over-the-air television service to the American people, there will likely be substantial public and political discord. Further, any loss of service would most likely be in the more rural areas, which lack an availability of cable and newspapers, and would result in a less informed citizenry, who would have difficulty obtaining timely news and information.

4. A significant loss of free over-the-air television service will result if the Commission does not retain the allocation of VHF channels 2 through 6 for television service and permit licensees operating NTSC stations on those channels to operate their DTV service on Channels 2-6 at the end of the transition period. It is well recognized that the propagation characteristics of low band VHF television channel operations are superior to those of UHF channels operations in difficult terrain where physical obstructions are present, as well as in extending coverage beyond the horizon. This is known both by theory

and practice, and the Minneapolis-St. Paul and the Albuquerque television markets, in which Hubbard operates, provide a useful study.

5. Both of those markets include large geographic areas which extend beyond the periodical Grade B of the television stations operating therein. But, as those living in the outlying areas have no alternative way to receive television, they do everything possible to obtain the best signal possible. This is accomplished by higher than normal receiving antennas, translator service, and, where population density is sufficient, cable service. Hubbard knows through experience (*e.g.*, from correspondence and physical inspection) that a substantial number of persons depend upon the VHF stations of these markets to provide their only over-the-air reception. Hubbard knows that these areas presently served by the VHF stations do not receive a viewable signal from the UHF stations operating with maximum power from comparable height. The UHF signals simply do not adequately overcome terrain obstructions or earth curvature.

6. The attached Technical Statement by Professional Consulting Engineers du Treil, Lundin & Rackley, Inc. ("DLR"), attempts to quantify this propagation short-coming empirically using the best tools and theory available. It must be acknowledged that there is precious little empirical data about DTV/UHF propagation at this time.<sup>1</sup> Using Longley-Rice, which the Commission staff used for its modeling, DLR conservatively calculates that

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<sup>1</sup> Capitol Broadcasting Company, the operator of digital television station WRAL-HD, reports that because of the limited number of digital television demodulators presently in existence, it is presently unable to analyze how UHF propagation characteristics affect the delivery of a viewable digital picture. While it is readily able to determine the presence of the RF carrier without a demodulator, it is presently unable to determine whether the bit error rate at any particular location meets the minimum threshold requirements. Capitol has ordered digital television demodulators, but more time is necessary for adequate testing and evaluation.

KOB-TV presently serves 788,500 persons with its NTSC operation on channel 4<sup>2</sup>. On the other hand, its digital operation on Channel 48 would reach only 752,000 persons, for a **loss of service to 36,500** persons. DLR conservatively calculates that KSTP-TV presently serves 3,027,600 persons with its NTSC operation on channel 5. Its digital operation on channel 50 is calculated to serve only 3,009,200 persons, for a **loss of service to 18,400** persons.

7. In order to serve those in the extended areas of its markets, Hubbard utilizes 108 translator stations to provide free over-the-air television. DLR estimates that 664,700 persons live within the protected contour service areas of those 108 translator stations. Should the FCC adopt its allotment plan and not utilize all television channels during the transition period, DLR calculates that 136,100 persons will lose their free over-the-air television reception of the Hubbard stations. These analyses covering only two Hubbard television stations and 108 translator stations present but a small picture of the total loss of free over-the-air television service to the public.

8. This viewer disruption would not be offset by the public benefits of digital television, and, therefore, the adoption of the Draft DTV Table presents a significant public interest detriment. Thus, it is imperative that the Commission permit stations currently operating on the VHF channels 2 through 6 through the transition period. At the end of the transition period, television licensees should be able to choose which of the two channels should be used for their continued television service. The Commission has long considered the loss of service as an anathema to the public interest.

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<sup>2</sup> Hubbard believes that there are viewers beyond those that are predicted by Longley-Rice.

9. Indeed, the Commission's policy is to deny a proposed allotment where the loss of existing service would not be outweighed by any public benefits to be gained by granting the proposal. In *Community Modifications II*, 5 FCC Rcd 7094, 7097 (1990), the Commission stressed that:

The public has a legitimate expectation that existing service will continue, and this expectation is a factor we must weigh independently against the service benefits that may result from reallocating of a channel from one community to another . . . . Removal of service is warranted only if there are sufficient public interest factors to offset the expectation of continued service.

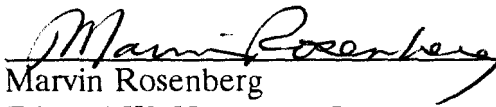
*Compare Pueblo, Colorado*, 10 FCC Rcd 7662, 7667 (Allocations Branch 1995) (proposed TV allotment denied where service loss outweighed service gains) and *Eatonton and Sandy Springs, Georgia, et al.*, 6 FCC Rcd 6580, 6586 (Mass Media Bureau 1991) (proposed FM reallocation denied where disruption of existing service would not be offset by the public benefits of the proposal) with *Albion, Lincoln, and Columbus, Nebraska*, 8 FCC Rcd 2876, 2878 (Allocations Branch 1993) (grant of proposed TV reallocation conditioned upon operation of a replacement channel so that "virtually all of the current viewers of Albion Channel 8 will experience no significant loss of network television service"), *recon. den.*, 19 FCC Rcd 11931 (1995) and *Lima, Ohio, et al.*, 7 FCC Rcd 5933, 5933 (Policy and Rules Div. 1992)(dereservation and TV reallocation granted where public would benefit from diversity of programming with no disruption of existing service).

10. Here, the Draft DTV Table should not be adopted because the resulting service losses in the VHF band will be detrimental to the public interest and contrary to the Commission's allotment policy. Under the Draft DTV Table, the large service losses that

would result from the migration of stations operating on Channels 2 through 6 to the UHF band to present digital television service would outweigh any public benefit to be gained from digital television.

Respectfully submitted,

**HUBBARD BROADCASTING, INC.**

A handwritten signature in cursive script, appearing to read "Marvin Rosenberg", is written over a horizontal line.

Marvin Rosenberg  
Edward W. Hummers, Jr.

Its Counsel

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January 24, 1997

WAS1-227821

TECHNICAL EXHIBIT  
REPLY COMMENTS OF HUBBARD BROADCASTING

Technical Statement

This Technical Exhibit was prepared on behalf of Hubbard Broadcasting as part of Hubbard's reply comments in the Federal Communication Commission's (FCC) Sixth Further Notice of Proposed Rule Making (FNPRM) in MM Docket No. 87-268. This proceeding concerns advanced television systems and their impact upon the existing television broadcast service. Hubbard is the licensee of ten full-service television stations, including two which operate on channels 4 and 5. Additionally, programming from Hubbard's stations is duplicated on 108 low power television translator stations.

If full accommodation and replication of existing NTSC service areas is the real goal of DTV, then all VHF stations should return to their present NTSC channels for the final DTV operations as was stated by several commentators in this proceeding. It is suggested that each station be assigned a second channel for DTV use during the transition period, as to what has been proposed by the FCC in this proceeding. Returning to the present NTSC channel, the VHF channels in particular, is the best means of insuring present coverage. It will preserve free over-the-air television service for more of the persons presently receiving service, involve less power, be more spectrum efficient, cause less interference, have less impact on LPTV service, and still permit the possible recapture of spectrum for other uses.

Full-Service Allotment Considerations

As can be seen from Figure 1, of the ten Hubbard full-service stations, eight of the stations presently operate in VHF spectrum. These eight stations serve widespread coverage areas with favorable signal propagation and relatively low effective radiated powers, typical with VHF broadcast stations. Under the FCC's DTV reallocation plan, all but one of Hubbard's VHF stations will migrate into the UHF spectrum. None of Hubbard's full-service stations are allocated, including the existing NTSC and the proposed DTV channels, within Channels 60 to 69 being considered for recapture for other services. However, two very significant stations presently operate on channels 4 and 5 which the Commission and some parties have suggested should not be retained for television use.

In the FCC's attempt to replicate NTSC VHF broadcast coverage areas with a DTV UHF broadcast facility, a large increase in effective radiated power is required. Of the seven Hubbard VHF stations the FCC proposes to migrate into UHF spectrum, the average increase in effective radiated power (NTSC peak power to DTV average power) is 11 decibels or 13 times the existing power. This increase in power is not practical to implement in Hubbard's opinion due to the required large numbers of power amplifiers, great input electrical power and transmission line size.

It is well recognized that television signals propagating on VHF channels, particularly in the low band (channel 2 to 6), refract better around terrain obstructions and the curvature of the earth than do those propagating on UHF channels. There is also less signal attenuation of the VHF signal than UHF signal. This fact is recognized by the FCC in the computation of the television station's Grade A

and Grade B coverage contours. The Grade A coverage contours for two collocated VHF and UHF broadcast stations (transmitting with the same antenna height and equivalent power) are somewhat identical, however, the VHF station's Grade B coverage contour extends much further than the UHF station's coverage contour.

This coverage disparity between VHF and UHF stations arises when the VHF signal can propagate past the radio horizon, that is where the transmission beam grazes the earth and "spills" over the edge. Due to the higher frequencies, UHF transmissions are basically terminated at the radio horizon with very little signal spilling over the edge or beyond the radio horizon. Therefore, to propagate UHF signals beyond the radio horizon, enormous effective radiated powers are required.

In order to avoid possible confusion, the effective radiated power for DTV is stated as the average (RMS) whereas the NTSC effective radiated power is defined as the peak-of-sync. To convert a DTV effective radiated power to a NTSC equivalent power, the DTV power has to be multiplied by 4 (or increased by 6 decibels). Therefore, equipment manufactured for DTV operation, such as transmitters, antennas and transmission lines, have to be designed to withstand the average DTV power times 4. For example, the KSTP-TV DTV facility proposed by the FCC specifies an average effective radiated power of 3,134 kilowatts. This is a NTSC equivalent peak effective radiated power of 12,536 kilowatts ( $3,134 \times 4$ ) which the DTV transmitting facility must render.

Since a UHF facility cannot realistically replicate VHF coverage areas, present service areas will be lost and millions of the viewers presently receiving free

***du Treil, Lundin & Rackley, Inc.***

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Hubbard Broadcasting

off-the-air television will be denied that service. Figure 2 is a map showing NTSC coverage areas of Hubbard station KOB-TV on VHF Channel 4 at Albuquerque, New Mexico. The present KOB-TV NTSC peak effective radiated power is 26.8 kilowatts. The FCC predicted Grade B coverage contour is shown as well as the Longley-Rice predicted coverage areas.<sup>1</sup> The dots shown on the map indicate areas of received interference from other stations and allotments. Red dots are areas of predicted NTSC interference; yellow dots are areas of predicted DTV interference from stations identified in the FCC allotment table. Figure 3 is a similar map for the KOB-TV FCC proposed DTV facility on UHF Channel 48. As suggested by the FCC, the KOB-TV average DTV effective radiated power is 718 kilowatts.

The favorable VHF signal propagation is easily distinguishable between the KOB-TV NTSC and DTV facilities, despite the effective radiated power increasing from 26.8 kilowatts peak to 718 kilowatts average (15 decibel or 27 times increase). With the present NTSC facility, service to persons is actually provided beyond the FCC predicted Grade B coverage contour, whereas for the proposed DTV facility, replication of present service is not even predicted within the Grade B coverage contour. It is noted for the KOB-TV UHF facility that an environmental clutter factor of 6 decibels was employed to account for attenuation differences between VHF and UHF facilities caused by urbanized areas and vegetation.

The population residing within the NTSC KOB-TV Longley-Rice predicted coverage areas free of predicted

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<sup>1</sup> The Longley-Rice is a point-to-point signal propagation model that considers the actual terrain present between a transmitter and a receiver. The Longley-Rice model was also employed by the FCC in the assignment process.

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Hubbard Broadcasting

interference is 788,500 persons.<sup>2</sup> The population residing within the KOB-TV DTV Longley-rice predicted coverage areas free of predicted interference is 752,000 persons. Therefore, 36,500 persons presently serviced by NTSC KOB-TV are predicted not to receive DTV KOB-TV service.

The KOB-TV service loss areas can be identified by comparing the NTSC and DTV coverage maps. As can be seen, these loss areas are mostly located near the NTSC Grade B contour where existing NTSC signal levels are at a low level and an outdoor receiving antenna is required. These areas can be characterized with widespread scattered population and low cable penetration.

The existing NTSC and proposed DTV coverage areas of Hubbard station KSTP-TV at St. Paul, Minnesota were also calculated. KSTP-TV presently operates on VHF Channel 5 with a peak effective radiated power of 100 kilowatts. Under the FCC's reallocation table, it is proposed that KSTP-TV migrate to Channel 50 with an average effective radiated power of 3,134 kilowatts. As the 3,134 kilowatts average DTV effective radiated power will not be practical to implement, a more realistic value of 1,000 kilowatts average was employed for the coverage calculations.

For KSTP-TV to achieve a FCC proposed average effective radiated power of 3,134 kilowatts, a minimum transmitter peak power rating of 600 kilowatts is required. From information provided by two broadcast transmitter manufacturers, Comark and Acrodyne, a transmitter cost estimate has been made. The cost for a 600 kilowatt peak power output transmitter would be around \$4,000,000. Furthermore, 600 kilowatt transmitters are not currently

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<sup>2</sup> The population figures were obtained from the 1990 U.S. Census of Population and Housing.

manufactured. In addition to the large transmitter costs, there will be significant costs for the waveguide and antenna system to handle these power levels. Also, due to the increased windloading from additional DTV transmitting antennas, tower modification costs will also be substantial.

Figures 4 and 5 are coverage maps showing the KSTP-TV Grade B coverage contour and the Longley-Rice predicted coverage areas for both the NTSC and DTV KSTP-TV facilities, respectively. The areas of received interference are also shown. Within the existing NTSC Longley-Rice service areas, 3,027,600 persons are predicted to receive interference-free service. For the proposed DTV facility, 3,009,200 persons are predicted to receive interference-free service within the Longley-Rice service areas. This represents a loss of service to 18,400 persons even though the effective radiated power is increasing from 100 kilowatts peak to 1,000 kilowatts average (10 decibel or 10 times increase).

As noted, the Longley-Rice signal propagation model, similar to the models used by the FCC and others, was employed to predict NTSC and DTV service areas. Based on the actual experience of Hubbard personal, existing NTSC service of both KOB-TV and KSTP-TV is known to extend beyond what is predicted by both the Longley-Rice model and the FCC Grade B contour. It is also known that at these areas of non-predicted service, UHF signals from stations located at or nearby the KOB-TV and KSTP-TV transmitter sites cannot be received, while VHF stations such as KOB-TV and KSTP-TV can be received.

In DTV, the received picture is actually dependent upon the bit error rate (BER) of the received data stream. The previous DTV tests have initially determined the minimum

received field strength required to maintain an acceptable bit error rate. However, the effect upon bit error rates and the received picture when the DTV signal is diffracted over a terrain obstacle(s) and where signal multipath (ghosting) is present requires further study to determine if the correlation between received field strength and picture reception remain valid. Since signal multipath and obstacle attenuation is typically more pronounced at UHF channels than at VHF channels, it is expected that an even greater number of viewers will lose service if DTV operation is not permitted on the low band VHF channels (channels 2 to 6).

#### Low Power Television Allotment Considerations

The over-the-air programming from Hubbard's full-service stations are duplicated on 108 low power television translators located throughout the nation. A tabulation of the translators is shown on Figure 6. Most of the television translators broadcast in small communities, located outside or near a Hubbard station's Grade B contour. These isolated communities typically have difficulty receiving a full-service Hubbard station and therefore require a translator for over-the-air program reception. The translators are either usually owned by Hubbard or a local non-profit community organization.

Of the translators which duplicate Hubbard programming, forty-four stations are located between UHF channels 52 and 69, twenty-six stations are located between UHF channels 60 and 69 and twelve stations are located between VHF channels 2 and 6, inclusive, as identified on Figure 6. The FCC proposes to reallocate television service to a "core spectrum" of DTV broadcast operations between VHF channels 7 to 13 and UHF channels 14 to 51 and furthermore,

wishes to recover UHF channels 60 to 69 prior to the end of the transition period. Therefore, fifty-six (or 52 percent) of the low power television translators duplicating Hubbard programming located outside the core spectrum (between channels 2 to 6 and 52 to 69) will be displaced under the FCC's plan. These displaced stations will have difficulty being allocated to other channels as both NTSC and DTV full-service and existing low power television facilities have to be protected from interference.

In order to minimize loss of service from the low powered television translators, UHF channels 60 to 69 should be retained during the transition period. At the conclusion of the transition period, when NTSC transmission service is terminated, additional channels will become available for low power television operation. This is because low power television stations will not be precluded from the present NTSC protected "UHF Taboo" channels and only have to protect the DTV co-channel and first-adjacent channels. Therefore, preserving UHF channels 60 to 69 until after the transition period will minimize loss of existing low power television service.

Figures 7, 8 and 9 are maps showing the combined protected contour coverage of the translators and the FCC predicted Grade B contours of the full-service Hubbard stations. The population residing within the combined translator protected contour service area is approximately 664,700 persons. Since these translators may be displaced, either by being located outside the core spectrum or causing predicted interference to a full-service DTV station, these 664,700 persons presently receiving Hubbard programming from a low power translator may lose service.

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Hubbard Broadcasting

The FCC also wishes to reclaim UHF channels 60 to 69 prior to the conclusion of the transition period. As noted, Hubbard presently utilizes twenty-six low power television translators on channels 60 to 69. These translators service approximately 136,100 persons within the combined protected coverage contours. It may be difficult to find replacement channels if these low power television stations are displaced due to the required protection of other full-service NTSC and DTV facilities and other existing low powered television stations. Consequently, 136,100 persons presently receiving service on channels 60 to 69 may lose service prior to the end of the transition period.

Summary

As noted, it is not possible to replicate existing VHF coverage with a UHF facility. Within just two of Hubbard's stations, KOB-TV and KSTP-TV, 54,900 persons are predicted not to receive DTV service which presently receive NTSC service. Since VHF signals propagate better around obstructions, over the radio horizon and have less attenuation than comparable UHF signals, it is virtually impossible to realistically replicate an existing VHF station's coverage with a UHF facility. Therefore, Hubbard recommends that the existing NTSC channel be retained for final DTV operation after the transition period.

If the 108 low power translators which duplicate Hubbard programming are displaced, 664,700 persons could also lose existing service. These low power television service areas are typically isolated communities which have difficulty receiving the primary Hubbard station over-the-air. Also, if the FCC reclaims channels 60 to 69 prior to

the end of the transition period, 136,100 persons could lose service. Therefore, Hubbard recommends that all channels, including UHF channels 60 to 69, be retained until after the transition period.



Charles A. Cooper

January 24, 1997

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TECHNICAL EXHIBIT  
REPLY COMMENTS OF HUBBARD BROADCASTING

Tabulation of Hubbard Broadcasting Full Service Stations

Station	Existing NTSC Facilities		FCC Proposed DTV Facilities		DTV and NTSC Power Difference
	Channel	Effective Radiated Power (Peak)	Channel	Effective Radiated Power (Average)	
KSTP-TV St. Paul, MN	5	100 kW 20 dBk	50	3135 kW 35 dBk	+15 dB (32x)
KSAX(TV) Alexandria, MN	42	2750 kW 34 dBk	28	164 kW 22 dBk	-12 dB (0.06x)
KRWF(TV) Redwood Falls, MN	43	1230 kW 31 dBk	14	50 kW 17 dBk	-14 dB (0.04x)
WDIO-TV Duluth, MN	10	316 kW 25 dBk	39	3384 kW 35 dBk	+10 dB (10x)
WIRT(TV) Hibbing, MN	13	126 kW 21 dBk	36	1016 kW 30 dBk	+9 dB (8x)
KOB-TV Albuquerque, NM	4	26.9 kW 14 dBk	48	718 kW 29 dBk	+15 dB (32x)
KOBF(TV) Farmington, NM	12	316 kW 25 dBk	15	3438 kW 35 dBk	+10 dB (10x)
KOBR(TV) Roswell, NM	8	316 kW 25 dBk	15	1700 kW 32 dBk	+7 dB (5x)
WNYT(TV) Albany, NY	13	178 kW 23 dBk	4	2 kW 3 dBk	-20 dB (0.01x)
WHEC-TV Rochester, NY	10	316 kW 25 dBk	32	3438 kW 35 dBk	+10 dB (10x)

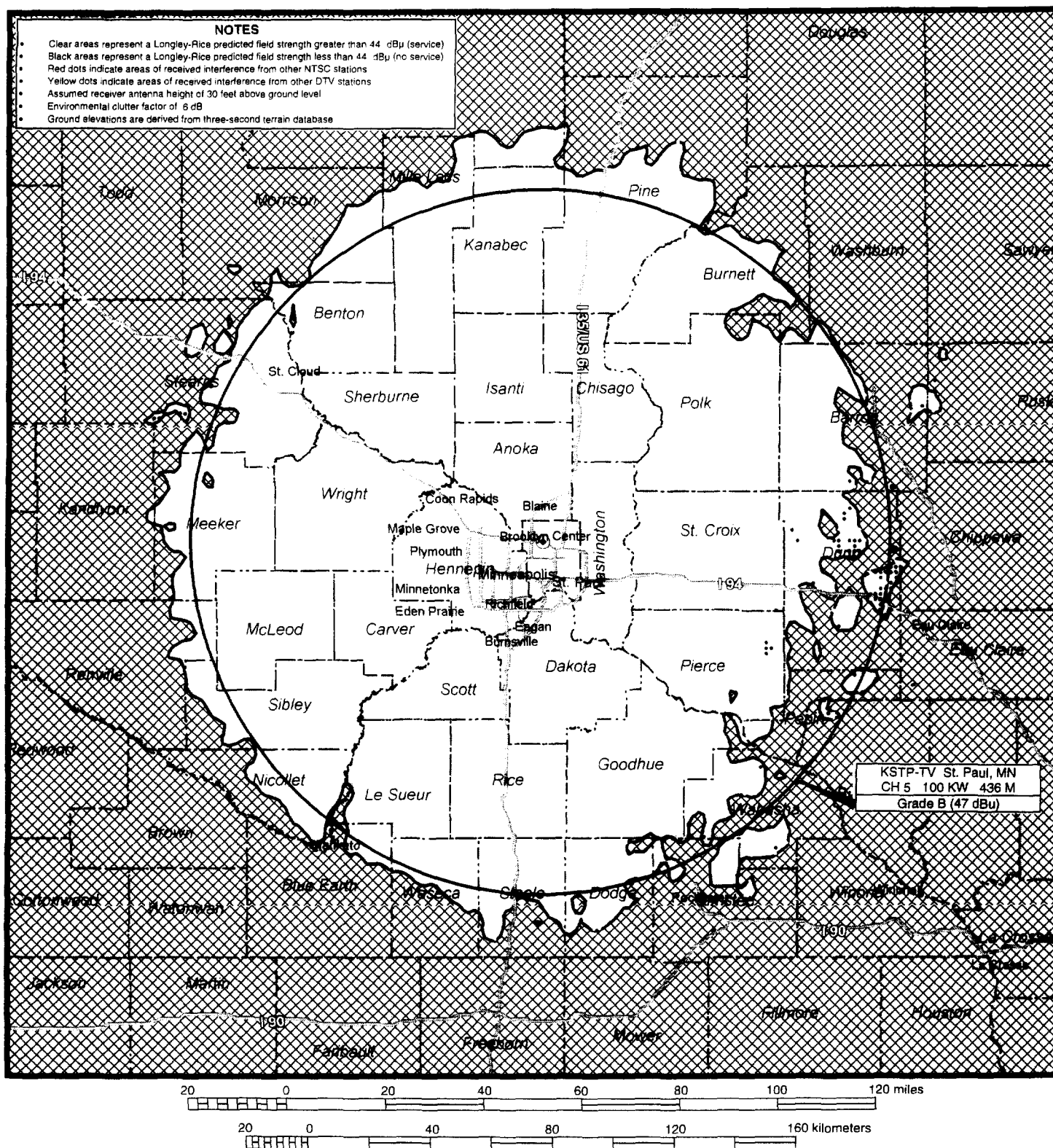
TECHNICAL EXHIBIT  
REPLY COMMENTS OF HUBBARD BROADCASTING

Tabulation of Low Power Translator Stations which  
Duplicate Hubbard Programming

<u>Callsign</u>	<u>Community</u>	<u>State</u>
K08HQ	Chinle CDP	AZ
K09WN	Ganado	AZ
K68BL	Klegetoh	AZ
K44BP	Many Farms	AZ
K69AF	Many Farms	AZ
K65BI	Window Rock	AZ
K11BA	Allison	CO
K65CI	Bayfield	CO
K11HU	Blanco River	CO
K11LP	Cortez	CO
K53DR	Cortez City	CO
K07KB	Del Norte	CO
K66BN	Durango	CO
K09CA	Dyke	CO
K08GM	Pagosa	CO
K54DH	Pagosa	CO
K63AN	Romeo	CO
K10AD	Vallecito	CO
W07AI	Pittsfield	MA
K66BI	Aitkin	MN
K28DD	Bemidji	MN
K50AK	Bemidji	MN
K64AM	Big Falls	MN
W58AI	Birchdale	MN
K16BQ	Brainerd	MN
K57BJ	Brainerd	MN
KLKS-LP	Breezy Point	MN
K63BW	Donnelly/Her	MN
K34DS	Ely	MN
K60FY	Frost	MN
K55BR	Grand	MN
W61AF	Grand Marias	MN
K65BA	Granite	MN
K49BU	International	MN
K61GE	Jackson	MN
K65AE	Kabetogoma	MN
K69DA	Little Falls	MN
K30AC	Marshall	MN
K60BL	Max	MN
K55BY	Northome	MN
K02HG	Northome	MN

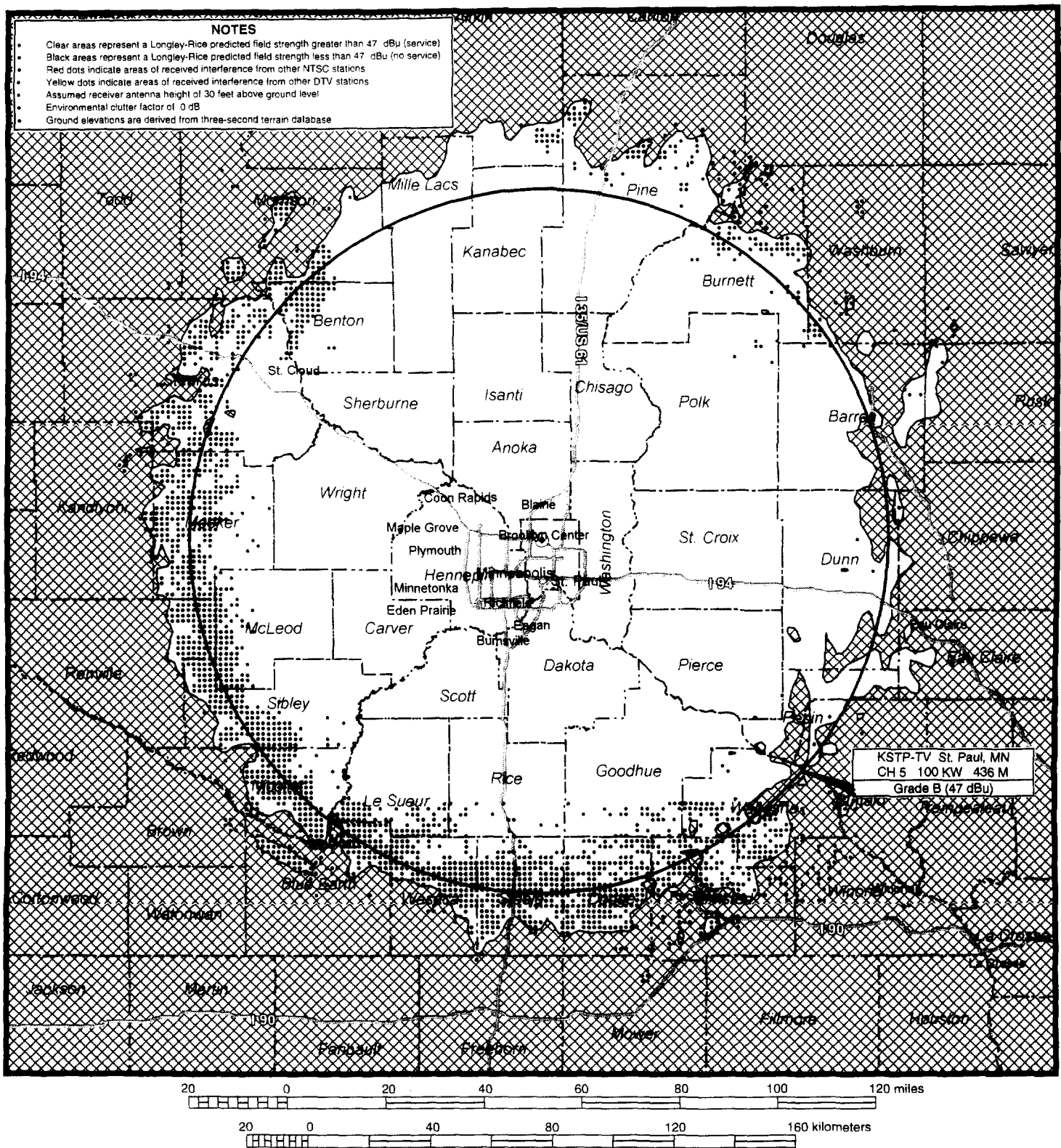
<u>Callsign</u>	<u>Community</u>	<u>State</u>
K49AJ	Olivia	MN
K24CV	Park Rapids	MN
K60AO	Redwood	MN
K32AF	St. James	MN
K57CN	Wabasha	MN
K20AC	Wadena	MN
K14AD	Willmar	MN
K58AF	Windom	MN
K29CT	Worthington	MN
K09LY	Abiquiu	NM
K69AC	Alamogordo	NM
K081M	Amalia	NM
K110N	Animas	NM
K06MS	Black Lake	NM
K57EB	Bloomfield	NM
K09KJ	Brazos	NM
K10LE	Buena Vista	NM
K53BN	Capitan/Ruid	NM
K57FI	Carlsbad	NM
K51CN	Carrizozo	NM
K56EH	Cebolla	NM
K09IG	Cliff-Gila	NM
K55AM	Clovis	NM
K57AB	Colfax	NM
K09IA	Conchas Dam	NM
K63EQ	Crownpoint	NM
K68EG	Datil/Horse Springs	NM
K68DX	Deming	NM
K30EK	Dulce/Lumber	NM
K48AX	Eagle Nest	NM
K61AF	Forrest/McAl	NM
K61BS	Gallina	NM
K06IS	Gallup City	NM
K65BH	Gallup City	NM
K06CU	Grants	NM
K42DJ	Las Cruces	NM
K06ED	Las Vegas	NM
K59CM	Lordsburg	NM
K06EV	Mescalero	NM
K55CV	Montoya/Newk	NM
K09DZ	Mora	NM
K25FI	Mora	NM
K04DV	Navajo	NM
K06FT	Penasco	NM
K09JK	Quemado	NM
K09GR	Questa	NM
K26DX	Raton	NM
K06FZ	Red River	NM

<u>Callsign</u>	<u>Community</u>	<u>State</u>
K09LN	Rinconoda	NM
K06EM	Roy Village	NM
K09VG	San Mateo	NM
K36DI	Santa Rosa	NM
K09KC	Santa Rosa	NM
K09NA	Sheep	NM
K06EH	Silver City	NM
K10MG	Socorro	NM
K06LE	Taos Town	NM
K55BP	Thoreau	NM
K51BQ	Truth or	NM
K67AI	Tucumcari	NM
K06FV	Vermejo Park	NM
K09CR	Wagon Mound	NM
K16DL	Zuni Pueblo	NM
W07AV	Gloversville	NY
W51AE	Bennington	VT
W63AR	Ladysmith	WI
W57AS	Spooner	WI



## DTV SERVICE AND RECEIVED INTERFERENCE AREAS

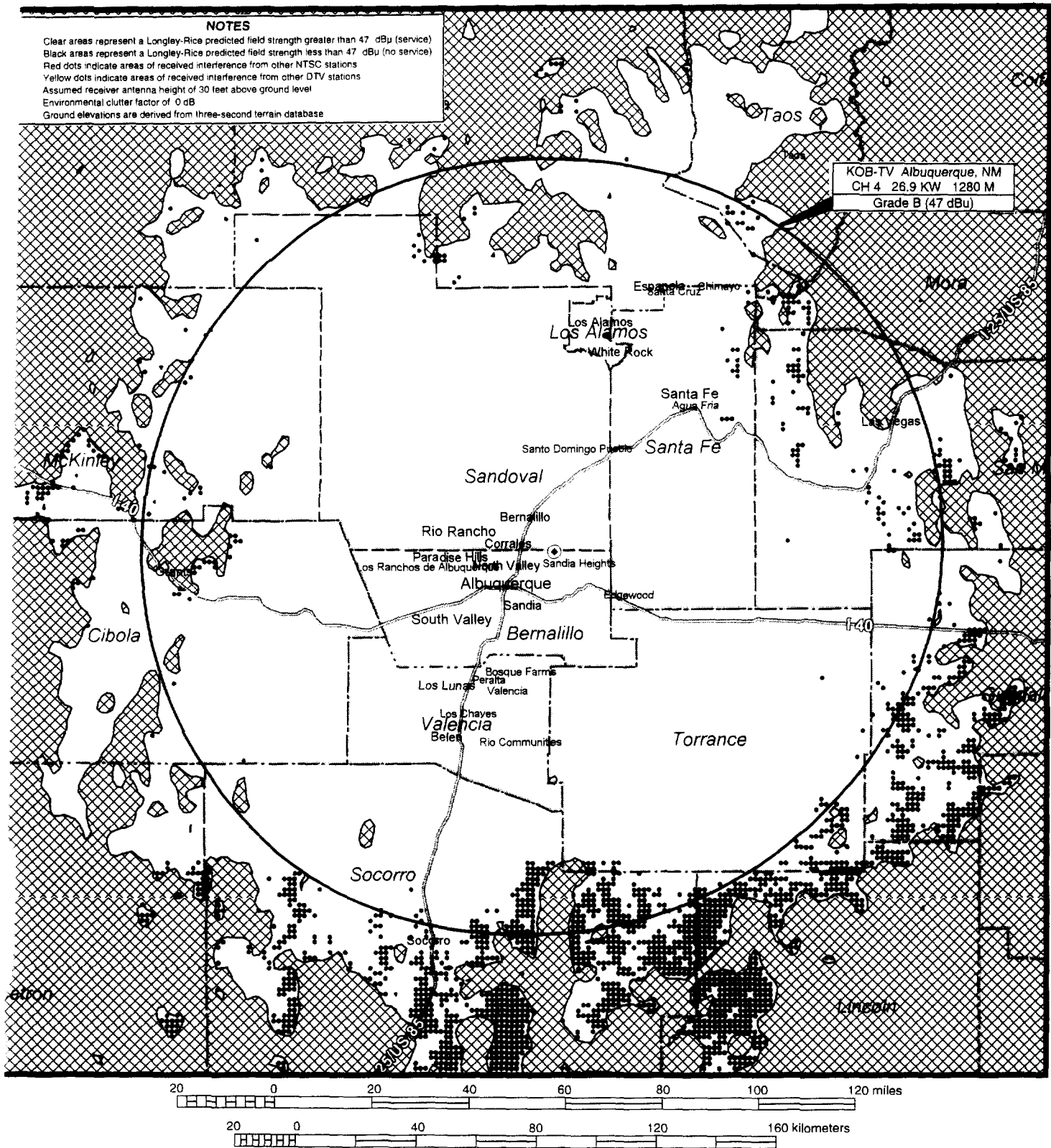
KSTP-TV  
ST. PAUL, MINNESOTA  
CH 50 1000 KW 436 M  
du Treil, Lundin & Rackley, Inc., Sarasota, Florida



## NTSC SERVICE AND RECEIVED INTERFERENCE AREAS

KSTP-TV  
ST. PAUL, MINNESOTA  
CH 5 100 KW 436 M

du Treil, Lundin & Rackley, Inc., Sarasota, Florida



## NTSC SERVICE AND RECEIVED INTERFERENCE AREAS

KOB-TV  
ALBUQUERQUE, NEW MEXICO  
CH 4 26.8 KW 1280 M

du Treil, Lundin & Rackley, Inc., Sarasota, Florida